

WHAT IS CLAIMED IS:

1. Thiophene oligomers characterized in that they have at least one functional group able to form a covalent bond with organic molecules, biological molecules or both, and are excitable in the visible and ultraviolet light region.
2. Oligomers as in claim 1, characterized in that they have between 2 and 5 thiophene rings.
3. Oligomers as in claim 2, characterized in that there are between 3 and 4 thiophene rings.
4. Oligomers as in claim 1, characterized in that the functional group is selected from the group consisting of NH₂, CHO, COOH, SH and NCS.
5. Oligomers as in claim 4, characterized in that the functional group is NCS.
6. Oligomers as in claim 5, characterized in that the functional group NCS is bound to the oligomer by means of an alkyl spacer comprising from 2 to 4 carbon atoms.
7. Oligomers as in claim 6, characterized in that the alkyl spacer is selected from the group consisting of CH₂CH₂- and (CH₃)₂Si-CH₂-.
8. Use of the thiophene oligomers, according to claim 1, as fluorescent markers.
9. Use of the thiophene oligomers according to claim 8, as fluorescent markers for organic molecules or biological molecules or both.
10. Use of the thiophene oligomers according to claim 9, as fluorescent markers for one or more substances selected from the group consisting of proteins, polyclonal antibodies, fractions of polyclonal antibodies, monoclonal antibodies, fractions of monoclonal antibodies, nucleic acids, oligonucleotides, hormones, medicines, drugs, and non-proteic chemical neurotransmitters.
11. Use of the thiophene oligomers according to claim 1, as fluorescent markers in spectrometry, spectrofluorimetry, flow and static cytometry, fluorescence microscopy and gel electrophoresis.
12. Use according to claim 8, characterized in that a large number of the oligomers with different emission frequency are excited simultaneously in the same biological sample,

through at least one emissive radiation source.

13. Conjugate of a thiophene oligomer according to claim 1 with an organic or biological molecule.